

(FAC). FAC operated a research and development facility on this property. Operations included the use of chlorinated solvents in and around Buildings 7 and 8. Ford Motor Company (in coordination with Space Systems/Loral, Inc.) has investigated and remediated PCE discharges at the site and currently conducts groundwater and soil gas monitoring on this property. Groundwater and soil gas below this property is impacted by VOCs. The Water Board regulates the investigation and remedial activities at this property under Site Cleanup Requirements Order No. R2-2007-0022.

East of the Site

TCE has been respectively detected in groundwater in the A- and B- aquifers at concentrations of 9,500 ppb and 16,000 ppb at the former Fairchild and Advalloy Machine Shop, located at 4055-4057 Fabian Way.

8. **Prior Remedial Measures:** East Charleston operated a groundwater extraction and treatment system from 1999 to 2002. Four extraction wells (RW-1A/B, RW-2A/B) were installed on the downgradient (north) side of the Building. Groundwater was initially extracted using the four extraction wells and then augmented with extraction from well IW-1B. Six injection wells (IW-1A/B, IW-2A/B, and IW-3A/B) were installed south of the Building near the upgradient property boundary. The groundwater was treated through two activated carbon vessels. The treated groundwater was then pumped into the injection wells. The cumulative amount of VOCs removed by the treatment system was 489 pounds over this time period, representing a total of 13,863,000 gallons of treated groundwater. Groundwater extraction was discontinued in 2002 due to stabilization and in some cases increases of TCE concentrations in the groundwater.

East Charleston implemented an enhanced bioremediation program in 2002 by injecting diluted cheese whey in the A- and B- aquifers to promote breakdown of VOCs by naturally occurring bacteria. The cheese whey injection promotes anaerobic reductive dechlorination (ARD) of VOCs in groundwater. ARD is a micro-biologically mediated process occurring in oxygen poor environments. VOCs are degraded into a succession of by-products ultimately leading to the production of chloride and ethene/ethane gases. Nine different injection events have occurred since 2002. The average estimated removal for the chlorinated hydrocarbons between 2002 and 2007 are: 93% for TCE, 83.9% for DCE and 74.7% for VC. VOCs concentrations remain high at some B-aquifer locations as monitored in September 2007.

Soil remediation has not been completed at the Site. Additional soil and groundwater remediation is needed to meet cleanup standards at the Site, and the need for additional remediation downgradient of the Site must be evaluated as set forth in this Order.

9. **Environmental Risk Assessment:** East Charleston conducted a human health risk assessment (HHRA) for the Site in 2000. The HHRA was based on VOC concentrations collected in the A-aquifer between 1999 and 2000. Based on current and likely potential future uses of the Site, the following hypothetical human receptors were evaluated in the HHRA:

- Outdoor Commercial/Construction Worker;
- Indoor Commercial Worker

Because zoning designations prohibit residential use at the Site, a resident receptor was not included in the risk assessment. The HHRA did not calculate cumulative hazard indices for non-carcinogens. Excess cancer risks from assumed exposure to constituents of concern at the Site were reported in the HHRA as follows:

HHRA Exposure Pathways and Health Risks

Exposure Pathway	Carcinogenic Risk (1)
Inhalation in outdoor air (outdoor commercial worker)	4E-8
Inhalation in outdoor air (outdoor construction worker)	2E-07 to 3E-05
Inhalation in indoor air (indoor commercial worker)	4E-06

Table Note:

(1) The constituents of concern in groundwater include Tetrachloroethylene (PCE), TCE, 1,1 DCE, cis-1,2-DCE, 1,2 dichloropropane, 1,2-dichloroethane, 1,1,2-trichloro-1,2,3-trifluoroethane, VC and benzene.

For comparison, the Water Board considers the following risks to be acceptable at remediation sites: a cumulative hazard index of 1.0 or less for non-carcinogens, and a cumulative excess cancer risk of 10-E4 to 10E-6 or less for carcinogens.

Due to excessive risk that will be present at the Site pending full remediation, institutional constraints are appropriate to limit onsite exposure to acceptable levels. Institutional constraints include a deed restriction that notifies future owners of subsurface contamination, prohibits the use of shallow groundwater beneath the Site as a source of drinking water until cleanup standards are met, and prohibits sensitive uses of the Site such as residences and daycare centers.

- 10. Remedial Action Plan:** East Charleston submitted its remedial action plan on August 1, 2000, entitled "Proposed Final Remedial Actions and Cleanup Standards." The proposed remedial action at that time was groundwater extraction and treatment. The Remedial Action Plan does not fully address impacts of VOCs discharges from the Site on downgradient properties. After conducting groundwater extraction and treatment for three years, East Charleston submitted an amended remedial action plan in the April 22, 2002, quarterly report entitled "Quarterly Technical Status and Groundwater Self-Monitoring Calendar Quarter January – March 2002." The new proposed remedial action is enhanced bioremediation with injections of carbohydrate solutions such as cheese whey in the A- and B- aquifers. East Charleston proposes to conduct an additional injection event in 2008 utilizing four B-aquifer and three A-aquifer injection points along the front of the Site. Additional groundwater remediation in accordance with the terms of

this Order is needed downgradient of the Site.

East Charleston submitted a contaminated soil removal action plan on June 22, 2004, entitled "Removal Action for Mitigation of Subsurface Concerns, 844 East Charleston Road, Palo Alto, California." The proposed removal action estimates that nine cubic feet of contaminated soil needs to be removed from the Site. An "Addendum to Removal Action for Mitigation of Subsurface Concerns and Request for Subsurface Hazardous Materials Closure" report, dated March 23, 2005, was submitted to the Palo Alto Fire Department. This report documents additional investigations and includes a request for subsurface closure issued by the Palo Alto Fire Department to East Charleston issued on September 16, 2003.

11. Basis for Cleanup Standards

- a. **General:** State Water Resources Control Board (State Board) Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this groundwater impact and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background shall be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously-cited remedial action plan confirms the Water Board's initial conclusion that background levels of water quality cannot be restored. This Order and its requirements are consistent with Resolution No. 68-16.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304," applies to this discharge. This Order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

- b. **Beneficial Uses:** The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Board, the United States Environmental Protection Agency, and the Office of Administrative Law where required.

State Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the Site qualifies as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

- Municipal and domestic water supply
- Industrial process water supply
- Industrial service water supply
- Agricultural water supply

At present, there is no known use of groundwater underlying the Site for the above purposes.

- c. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standards for the Site are based on applicable water quality objectives and are the California maximum contaminant levels (CA MCLs). Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to humans. Groundwater cleanup standards are shown in section B.2 below.
 - d. **Basis for Soil Cleanup Standards:** The soil cleanup standards for the Site are based on the protection of ecological receptors, prevention of nuisance conditions, prevention of leaching of contaminants to groundwater, and protection of human health under a commercial/industrial indoor air or direct exposure scenario. The most restrictive of the above factors will apply on a chemical-by-chemical basis. Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to human and ecological receptors in a commercial/industrial use scenario. Soil cleanup standards are shown in section B.3 below.
 - e. **Basis for Soil Gas Cleanup Standards:** The soil gas cleanup standards for the Site are based on the protection of human health under a commercial/industrial indoor air exposure scenario. Soil gas cleanup standards are shown in section B.4 below.
12. **Future Changes to Cleanup Standards:** The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the Site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this Site may not be possible. If full restoration of beneficial uses is not technologically or economically achievable within a reasonable period of time, then the dischargers may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Water Board may decide that further cleanup actions shall be taken.
 13. **Reuse or Disposal of Extracted Groundwater:** Water Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

14. **Basis for 13304 Order:** California Water Code Section 13304 authorizes the Water Board to issue orders requiring dischargers to cleanup and abate waste where the dischargers have caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
15. **Cost Recovery:** Pursuant to California Water Code Section 13304, the dischargers are hereby notified that the Water Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
16. **CEQA:** This action is an Order to enforce the laws and regulations administered by the Water Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
17. **Notification:** The Water Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.
18. **Public Hearing:** The Water Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers (or their agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. REMEDIAL ACTION PLAN AND CLEANUP STANDARDS

1. **Implement Remedial Action Plan (RAP):** The dischargers shall continue to implement the 2002 amendment to the RAP related to onsite matters described in finding 10. The dischargers shall propose additional remedial actions in accordance with this Order for areas downgradient of the Site that are affected by discharges from the Site.
2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met throughout the area of impacted groundwater and in all groundwater monitoring wells identified in the Self-Monitoring Program.

Groundwater Cleanup Standards

Constituent	Groundwater Cleanup Standard (µg/L)	Basis
PCE	5.0	CA MCL
TCE	5.0	CA MCL
DCE	6.0	CA MCL
trans-1,2-dichloroethene (trans-1,2-DCE)	10	CA MCL
VC	0.5	CA MCL
1,2-dichlorobenzene (1,2-DCB)	600	CA MCL
1,4-dichlorobenzene (1,4-DCB)	5.0	CA MCL
TPH-g (gasoline)	210	Drinking Water (1)
TPH-m (middle distillates)	210	Drinking Water (1)

Table Notes:

(1) Drinking water standards based on non-Carcinogenic effects. Values from Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table F-3 (November 2007).

CA MCL= California Maximum Contaminant Level

µg/L = micrograms per liter

TPH = Total Petroleum Hydrocarbons

3. **Soil Cleanup Standards:** The following soil cleanup standards shall be met throughout the unsaturated zone at the Site. For the purposes of this Order, the unsaturated zone is defined as the zone above the water table's lowest historical or seasonal levels, as documented or anticipated. The cleanup levels shall be confirmed with confirmatory soil samples.

Soil Cleanup Standards

Constituent	Soil Cleanup Standard (mg/kg)	Basis
PCE	0.34	Direct Exposure
TCE	0.46	Leaching
DCE	0.19	Leaching
Trans-1,2-DCE	0.67	Leaching
1,1-Dichloroethane (1,1-DCA)	0.2	Direct Exposure
VC	0.021	Leaching
Gasoline	83	Leaching
middle distillates	83	Leaching
Toluene	2.9	Leaching
Cadmium	1.7	Direct Exposure
Copper	230	Urban Area Toxicity
Cyanide	0.54	Leaching
Lead	260	Direct Exposure
Mercury	1	Direct Exposure
Nickel	150	Urban Area Toxicity
Total Chromium	2,500	Gross Contamination
Zinc	600	Urban Area Toxicity

Table Notes:

Values based on screening for potable groundwater, shallow soils (less than 3 meters bgs) and commercial/industrial land use. Values from the Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table A-2 (November 2007).
mg/kg = milligrams per kilogram

4. **Soil Gas Cleanup Standards:** Except with respect to those downgradient properties that are the subject of a Risk Management Plan approved by the Water Board, the following soil gas cleanup standards shall be met at the Site and at properties impacted by discharges at the Site, with the applicable standard based on the land use of the parcel.

Soil Gas Cleanup Standards

Constituent	Commercial Soil Gas Cleanup Standard ($\mu\text{g}/\text{m}^3$)	Residential Soil Gas Cleanup Standard ($\mu\text{g}/\text{m}^3$)
PCE	1,400	410
TCE	4,100	1,200
VC	100	31
DCE	20,000	7,300
1,1-DCE	160	49
1,1-DCA	5,100	1,500
1,1,1-Trichloroethane	1,300,000	460,000
Gasoline	29,000	10,000
middle distillates	29,000	10,000
Benzene	280	84
Toluene	180,000	63,000
Ethylbenzene	580,000	210,000
Xylenes	58,000	21,000

Table Notes:

Values based on vapor intrusion into a building. Values from the Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table E-2 (November 2007). $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

C. TASKS

1. SUPPLEMENTAL REMEDIAL INVESTIGATION WORKPLAN

COMPLIANCE DATE: January 30, 2009

Submit a workplan acceptable to the Executive Officer to complete the definition of the vertical and lateral extent of groundwater and soil gas pollution both at the Site and at properties downgradient of the Site that have been impacted by discharges at the Site. The workplan should specify investigation methods and a proposed time schedule. For soil gas, the workplan should include depth profiling of soil gas concentrations to further identify pollution sources. Work may be

phased to allow the investigation to proceed efficiently, provided that this does not delay compliance. The workplan should include a completion schedule for the construction of the replacement to monitoring well MW-07. To the maximum extent possible, interference with land uses and operations at offsite locations shall be avoided. The workplan shall not propose any investigative activities that could breach or compromise the integrity or functioning of installed or planned remedial or risk management measures at downgradient properties or otherwise alter or interfere with the implementation and function of measures required by Risk Management Plans approved by the Water Board for these downgradient properties.

2. COMPLETION OF SUPPLEMENTAL REMEDIAL INVESTIGATION

COMPLIANCE DATE: June 30, 2009

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 1 workplan. The technical report should address the data gaps in defining the vertical and lateral extent of pollution down to concentrations at or below applicable cleanup standards for soil gas and groundwater.

3. COMPLETION OF SOIL REMEDIAL ACTIONS

COMPLIANCE DATE: July 14, 2009

Submit a technical report acceptable to the Executive Officer documenting the completion of remedial actions identified in the 2004 "Removal Action for Mitigation of Subsurface Concerns." The report should document:

- a. Removal of all contaminated soils at the Site including the former industrial work areas where soil cleanup standards (see B.3. above) are exceeded such as the former compressor and cladding areas.
- b. Abandonment of the floor sump located in the southeast corner of the former hazardous materials storage room, including sealing of the piping leading to and from the sump.

4. FIVE-YEAR STATUS REPORT

COMPLIANCE DATE: August 31, 2009, and every five years thereafter

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report shall include:

- a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment.
- b. Comparison of contaminant concentration trends with cleanup standards.

- c. Comparison of anticipated versus actual costs of cleanup activities.
- d. Remediation performance data (e.g., groundwater volume treated, contaminant mass removed or destroyed per million gallons treated, mass flux reduction).
- e. Cost effectiveness data (e.g., cost per unit mass of contaminant of concern removed or destroyed, cost per unit mass flux reduction).
- f. Summary of additional investigations (including results) and significant modifications to remediation systems.
- g. Additional remedial actions proposed to meet applicable cleanup standards at the Site and areas downgradient of the Site that are impacted by Site discharges (see B.2. above) including a time schedule. Include the projected removal rate (mass of contaminant/time) of the contaminant of concern in the media of interest with the proposed remedial action. For groundwater, separately determine these removal rates for all impacted groundwater zones. Provide the time (t) at which the cleanup standards will be achieved at the Site and offsite for the contaminant(s) of concern exceeding cleanup standards using the proposed remedial action. To the maximum extent possible, proposed remedial actions shall be designed to avoid interference with land uses and operations at downgradient properties. In no event shall such proposed remedial actions include any actions that could breach or compromise the integrity or functioning of installed or planned remedial or risk management measures at offsite properties, or otherwise alter or interfere with the implementation and function of measures required by Risk Management Plans approved by the Water Board for downgradient properties.

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report shall assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

5. PROPOSED INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: August 31, 2009

Submit a technical report acceptable to the Executive Officer documenting procedures to be used by the dischargers to prevent or minimize human exposure to soil, soil gas and groundwater contamination prior to meeting cleanup standards. Such procedures shall include a deed restriction applicable to the Site that notifies future owners of subsurface contamination, prohibits the use of shallow groundwater beneath the Site as a source of drinking water until cleanup standards are met, and prohibits sensitive uses of the Site such as residences and daycare centers.

6. IMPLEMENTATION OF INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: December 31, 2009

Submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

7. PROPOSED CURTAILMENT

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g., well abandonment), system suspension (e.g., cease enhanced bioremediation but wells retained), and significant system modification (e.g., major reduction of injection of biostimulative whey mixtures, closure of individual injection wells within injection network). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

8. IMPLEMENTATION OF CURTAILMENT

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 7 workplan

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in the Task 7 workplan.

9. WORKPLAN FOR ALTERNATE REMEDIAL ACTION PLAN

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a workplan acceptable to the Executive Officer for implementation of an alternate remedial action plan in the event that the remedial activities specified in the Order are not effective in achieving cleanup standards.

10. IMPLEMENTATION OF ALTERNATE REMEDIAL ACTION PLAN

COMPLIANCE DATE: 180 days after Executive Officer approval of Task 9 workplan.

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 9 workplan.

11. EVALUATION OF NEW HEALTH CRITERIA

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved cleanup plan of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

12. EVALUATION OF NEW TECHNICAL INFORMATION

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information bearing on the approved cleanup plan and cleanup standards for this Site. In the case of a new cleanup technology, the report shall evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

13. DELAYED COMPLIANCE:

If the dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the dischargers shall promptly notify the Executive Officer and the Water Board may consider revision to this Order.

D. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good Operation and Maintenance (O&M):** The dischargers shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The dischargers shall be liable, pursuant to California Water Code Section 13304, to the Water Board for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the Site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the dischargers over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the dischargers shall permit the Water Board or its authorized representative:
 - a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the requirements of this Order.
 - c. Inspection of any monitoring or remediation facilities installed in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the dischargers.
5. **Self-Monitoring Program:** The dischargers shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor/Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Water Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Water Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g., temperature).
8. **Document Distribution:** Electronic copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided within two weeks of the established task deadline to the following recipients:
 - a. City of Palo Alto, Fire Department
 - b. Santa Clara Valley Water District

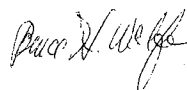
The Executive Officer may modify this distribution list as needed.

9. **Reporting of Changed Owner or Operator:** The dischargers shall file a written report on any changes in Site occupancy or ownership associated with the property described in this Order. This report shall be filed with the Water Board

within 30 days following a change in Site occupancy or ownership.

10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the dischargers shall report such discharge to the Water Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00). A written report shall be filed with the Water Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified. This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.
11. **Rescission of Existing Order:** This Order supersedes and rescinds Water Board Order No. 95-222.
12. **Periodic SCR Review:** The Water Board will review this Order periodically and may revise it when necessary.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 10, 2008.



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by Bruce Wolfe
Date:
2008.12.12
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Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

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Attachments: Self-Monitoring Program
Site Map

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

ADVALLOY, INC.
EAST CHARLESTON, INC., AND
FAIRCHILD SEMICONDUCTOR CORPORATION

for the property located at

844 EAST CHARLESTON ROAD
PALO ALTO
SANTA CLARA COUNTY

1. **Authority and Purpose:** The Water Board requires the technical reports in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Water Board Order No. R2-2008-0104 (Final Site Cleanup Requirements).
2. **Monitoring:** The dischargers shall measure groundwater elevations in all monitoring wells and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Monitored Aquifer	Sampling Frequency	Analyses
MW1, MW-8, RW-1A, RW-2A	A	Q	8260, DO, pH, C, T, Tr, ORP, and biogeochem
MW-1B, MW-2B, MW-3B, RW-1B, RW-2B, IW-1B, IW-2B, IW-3B, IW-4B	B	Q	8260, DO, pH, C, T, Tr, ORP and biogeochem

MW-01A, MW-02A, MW-2, MW-3	A	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem
Well #	Monitored Aquifer	Sampling Frequency	Analyses
MW-01B1, MW-01B3, MW-02B1, MW-02B2, Replacement to MW-07*	B	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem
MW-4, MW-5	A	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem

Key: Q= Quarterly; SA = Semi-Annually;
8260 = EPA Method 8260 analysis with only the USEPA Method 8010 compounds reported
DO = Dissolved oxygen
C, T, Tr = Conductivity, temperature, and turbidity
ORP = Oxidation reduction potential
Biogeochem = ethene, ethane, methane, chloride and total organic carbon
* once online

The dischargers may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

4. **Semi-Annual Monitoring Reports:** The dischargers shall submit semi-annual monitoring reports to the Water Board on January 31 and July 31 of each year. The first semi-annual report is due on January 31, 2009. The reports shall include:
 - a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the dischargers' principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
 - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall also be included.
 - c. **Groundwater Analyses:** Groundwater sampling data shall be presented in tabular

form. Timeseries of this data shall be included in a graphical format. An isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. These isoconcentration maps shall delineate concentrations to their respective groundwater cleanup standard included in section B.2 of the accompanying Water Board Order No. R2-2008-0104. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC (Quality Assurance/Quality Control) data. Historical groundwater sampling results shall also be included. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

- d. Groundwater Remediation Evaluation: As applicable, the report should include the following for each aquifer of interest:
 1. Evaluate the spatial stability of the groundwater plume leading edge using the isoconcentration maps included in the report. The report shall compare trichloroethylene (TCE) concentrations in the downgradient sentry wells (MW-01, MW-02 clusters and replacement MW-07) to the TCE groundwater cleanup standards concentrations listed in section B.2.
 2. Describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Quantify the degree of contaminant concentrations variability between sampling events. The degree of variability may be estimated using statistical tests (e.g., variance, standard deviation, coefficient of variation, and/or interquartile range).
 3. Compute the percentage reduction of the contaminants of concern since inception of the remediation action taken. The total percentage concentration reduction is:

$$100 \times \left[1 - \left(\frac{C_r}{C_0} \right) \right]$$
 where C_r is the contaminant concentration during the reported sampling period and C_0 is the concentration at the start of the remediation action. Historical removal values shall be included in the semi-annual report.
 4. Estimate the time t at which the concentration of the contaminants of concern will reach their respective groundwater cleanup standards in the A- and B- aquifers. This value is estimated using the following equation for a first order rate:

$$t = \frac{-\ln \left[\frac{C_{goal}}{C_0} \right]}{K_{point}}$$
 where C_{goal} is the groundwater cleanup standard (section B.2. of the accompanying Water Board Order No. R2-2008-X), C_0 is the concentration at the start of the remediation action, K_{point} is the slope obtained from the best fitted curve of the natural log of the concentration vs. time graph. The monitoring well location where this value of t is computed should be the monitoring well with the highest concentration of the contaminant of concern within the A- and B- aquifers from the most recent sampling dataset.
 5. Compute the mass flux F of the contaminants of concern in the A- and B- aquifers along an east-west transect located downgradient of the actively remediated area. F is computed as: $F = Q \times C$ where Q is the aquifer discharge (volume/time) and

C is the concentration of the contaminant of concern along the two dimensional transect.

6. Determine the center of mass (R) of the contaminants of concern in the A- and B-aquifers. R is derived from isoconcentration contours of the contaminant of concern using the sampling dataset. The mass of the dissolved contaminant of concern within each volumetric shell of groundwater saturated soil is calculated and the individual shell masses summed to yield a total dissolved contaminant of concern mass estimate. More specifically the mass of the contaminant of concern is calculated as the product of the mean concentration in the volumetric shell, the saturated soil volume, and a site-specific effective porosity value assumed to be representative of the Site. R is $\frac{\sum m_i r_i}{\sum m_i}$ where r_i is the coordinate position within a volumetric shell of a mass m_i . Alternatively R may be determined graphically.
 7. Determine the centerline of the contaminants of concern in the A- and B-aquifers. The centerline of the contaminant of concern may be quantified using graphical or software based methods.
- e. **Mass Removal Results:** If applicable, the report shall include enhanced bioremediation results in tabular form, for each injection well and for the Site as a whole, expressed in mass of biostimulative whey mixtures injected and total groundwater volume remediated semi-annually for the A- and B- aquifers. The report shall also include contaminant removal results from other remediation systems (e.g., soil gas extraction, groundwater extraction), expressed in units of chemical mass removed semi-annually for the A- and B- aquifers. Historical mass removal results shall be included in the semi-annual report.
 - f. **Status Report:** The semi-annual report shall describe relevant work completed during the reporting period (e.g., site investigation, interim remedial measures) and work planned for the following semester.
5. **Violation Reports:** If the dischargers violate requirements in the Site Cleanup Requirements, then the dischargers shall notify the Water Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. Water Board staff may, depending on violation severity, require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.
 6. **Other Reports:** The dischargers shall notify the Water Board in writing prior to any Site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for Site investigation.
 7. **Record Keeping:** The dischargers or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Water Board upon request.

8. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the dischargers. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

Figure 1: Site Vicinity Map

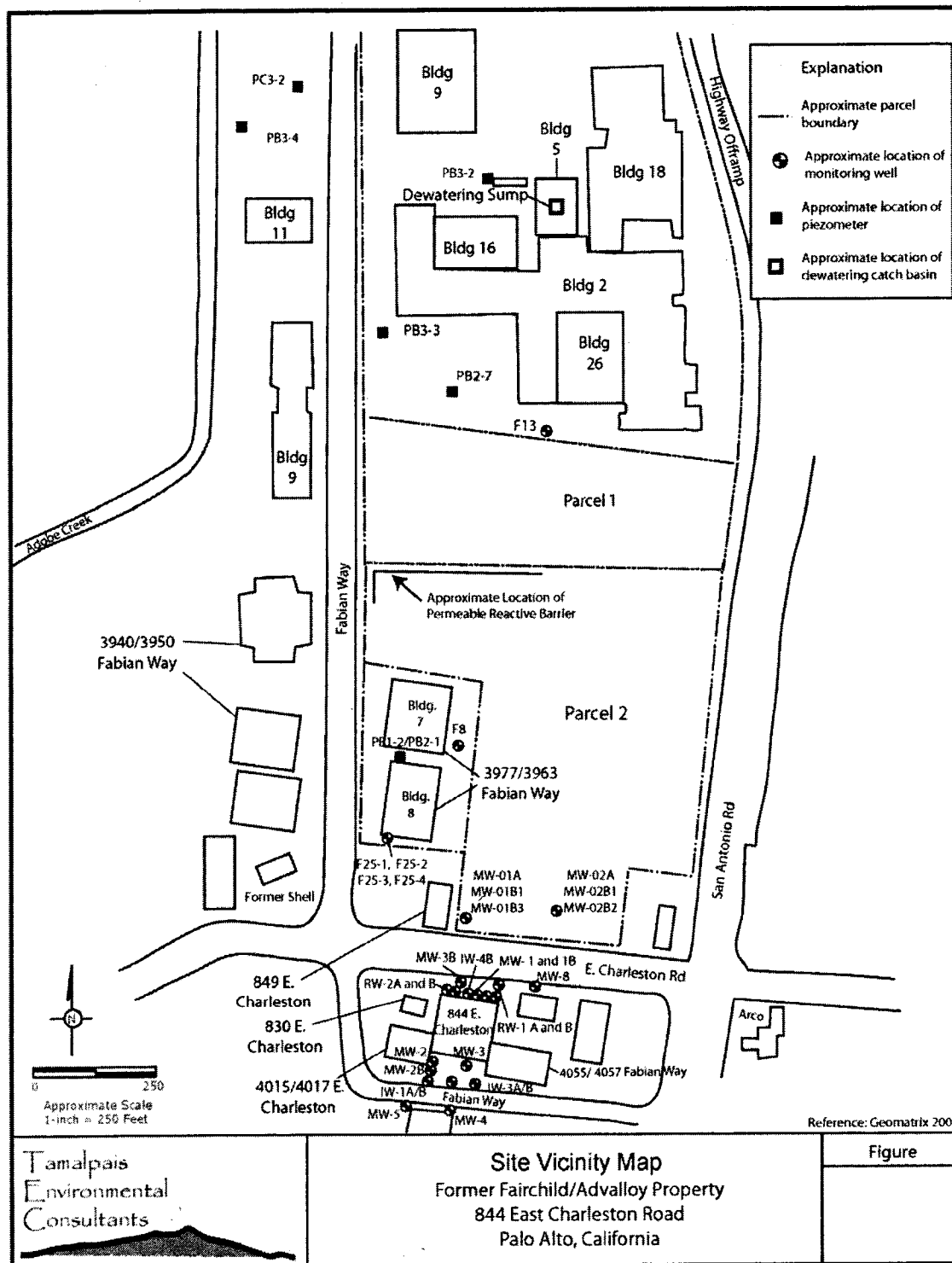


EXHIBIT C

EXHIBIT C Analysis of Sites Identified in Table 1 of Regional Board Staff Report and Recommendation		
Site	Cleanup and Abatement Order Issued?	Comments
1114 Branham Lane, San Jose Moon's Best Cleaners	NO	The current property owner is performing the cleanup. Dry cleaners have operated at the Site since the shopping center was built, in 1969, and the present. There does not appear to be any dispute that the dry cleaning operations caused the release of PCE. An investigation identified a broken and blocked sewer lateral during the dry cleaners' operations, which directly corresponded with the highest level of PCE in the groundwater. The Board has not pursued a CAO against any of the dry cleaners that operated at the Site and cleanup appears to be proceeding voluntarily.
Roy's Dry Cleaner, Sequoia Station, Redwood City	NO	The alleged leaking sewer main at the Site was vitrified clay pipe, not cast iron. The sewer lateral from the dry cleaner to the vitrified clay pipe, which almost certainly was cast iron, was reported to be in "very good condition" by Regional Board Staff. Despite an identified plume of solvent contamination in the vicinity of the sewer and a video showing sags and breaks in the sewer main, the Regional Board required further site characterization pursuant to Water Code § 13267, including soil borings. According to Regional Board Staff, the use of soil borings was "necessary" to "determine whether the sanitary sewer ... is the source of volatile organic compounds found in the groundwater."
Electroglas, Santa Clara	NO	Electroglas, Inc., leased the Site and conducted manufacturing operations for years. There does not appear to be any evidence that any other occupant used organic solvents at the Site. Per a June 17, 1997 letter, Electroglas agreed to voluntarily investigate and remediate the Site.
Sunnyvale Town Center Mall	NO	The alleged leaking sewer main at the Site was vitrified clay pipe, not cast iron. The Site is being remediated by the current site owner, the Redevelopment Agency of the City of Sunnyvale. Four or more dry cleaners historically operated at the Site. Investigations identified a compromised "antiquated vitreous clay pipe" with root intrusion and a collapsed section of pipe that corresponded with the highest detected soil gas concentrations. The Board has not pursued a CAO at the Site.

Marin Cleaners 520 4 th Street, San Rafael	NO	A single dry cleaner operated at the Site since 1955 and is conducting site investigations. An April 2008 RWQCB letter indicates that elevated solvent levels were found in "shallow soil and groundwater below the former dry cleaning machine location and at the drain connection inside the building." Soil borings have been used to investigate potential source areas, including the sewer line. Although a preliminary investigation indicated that a sewer line may be a source of contamination, the Board requested further characterization of the Site, including soil gas investigation. No CAO has been issued for the Site.
IBM, San Jose	Yes	Originally agricultural land, IBM constructed a 350 acre manufacturing facility at the Site in 1955 and continues to own the property today. The basis for naming IBM in R2-2002-0082 was "because substantial evidence indicates that releases occurred in areas where IBM used and stored chemicals and because IBM owns the property where the releases occurred." The identified source of contamination is a tank farm at the site and there is no mention of contamination from a sewer line in the CAO.
Heon's Dry Cleaner, Marin County	NO	The Site is being investigated by the current owner. The Site had a leaking UST and was previously occupied by a motorcycle shop and a dry cleaner. Site investigations are incomplete, the sewer lines have not been conclusively identified as a source, and the Board has not issued a CAO to the former occupants of the Site. On June 5, 2008, pursuant to Water Code § 13267, the Regional Board requested additional sampling of soil, groundwater, and soil gas to investigate the sources of contamination.
Royal Crown Cleaners, Sonoma	NO	The Site is being addressed by the current owner, a dry cleaner tenant, and a prior dry cleaner tenant. A June 2008 Investigation reports that PCE was likely released: (1) along a building wall, and (2) outside the back door. Although investigations continue, the June 2008 report did not identify the sewer as a source of contamination.
Teledyne, Mountain View	Yes	Teledyne began manufacturing at the Site in 1962. In 1982, Teledyne reported solvent contamination from a UST. CAO No. 91-025 states that "Teledyne Semiconductor ... is a discharger because of the releases of chemicals that have resulted from its waste handling facilities." Contamination from a sewer line is not a basis for naming Teledyne in the CAO, nor is it discussed in the recent Five-Year Review. There is no evidence that any previous occupant has liability at the Site.

Montwood, Mountain View	Yes	<p>CAO No. 01-010 names only the party (and its successor) that operated at the Site between 1960 and 1982. The Order makes no reference to sewer lines as a source of contamination. A May 15, 2008 Supplemental Remedial Investigation evaluated a sewer line as a potential source for some contamination at the Site. Although a sewer video showed a break in the pipe due to root intrusion, the report concluded that the "relationship between this sewer line break and the observed TCE impacts [are] unknown."</p>
Hewlett Packard, 395 Page Mill Road, Palo Alto	Yes	<p>HP owned and operated a manufacturing facility at the Site between 1942 and 1999. According to a July 2007 Regional Board Fact Sheet the "main source of soil and groundwater impacts at the Site were underground storage tanks." HP was named on Order 89-050, and subsequent Order 94-130 in connection with the Site. Order 89-050 did not cite any sewer leaks as a basis for naming HP as a discharger. During site investigations, a source area near a storm drain was identified through the use of soil borings. It is unlikely that the storm drain is made of cast iron and there is no evidence of previous occupants at the Site.</p>

EXHIBIT C.1



Union Pacific Railroad Company

**Supplemental Remedial
Investigation Report**

**Plymouth Street Site
1555, 1615, and 1625 Plymouth Street
Mountain View, California**

May 15, 2008

Prepared For:

Union Pacific Railroad
9451 Atkinson Street
Suite 100
Roseville, CA 95747

Prepared By:

Camp Dresser & McKee Inc.
100 Pringle Avenue, Suite 300
Walnut Creek, California 94596

Report

Street Site. Historic CPT investigations have shown TCE concentration above 1,000 µg/L in groundwater at locations on both sides of the Plymouth Street near wells MW-12 and NB-2 (see Figure 2 and Appendix D).

- The MIP profiles of CDM-MIP-1, -2, and -3 indicate that there is potential for a separate chlorinated VOCs release near CDM-MIP-2 which was placed approximately mid-way (30 feet on either side) between Gore survey points GS-612 and -613 (see Figure 10). CDM-MIP-2 had shallower and higher ECD peaks compared to CDM-MIP-1 and -3.
- The soil samples results from confirmation borings CDM-SB-1 and -2 support the presence of TCE in vadose zone soil between 3 to 8 feet bgs (see Table 3). A separate chlorinated VOCs release near CDM-MIP-2 is suspected because
 - the PCE and TCE hot-spot observed in Gore survey is isolated from the hot-spot on the Plymouth Street Site (i. e., near GS-53/CDM-MIP-19, see Figures 3 4, and 9),
 - the MIP profile of CDM-MIP-1, -2, and -3 have higher shallow ECD peaks compared to the nearest upgradient MIP points on the Plymouth Street Site (i. e., CDM-MIP-53 and -54 (see Figure 9 and Appendix B), and
 - the current (December 2007 – CDM, 2008b) total VOCs groundwater concentrations in well MW-12 are higher than those detected in nearest upgradient well on the Plymouth Street Site (i. e., well EW-1s and MW-3s, see Figures 2, 9, and 10).
- This suspected release near CDM-MIP-2 in the Plymouth Street may be the source of VOCs detected in well MW-12. However, additional information directly downgradient on 1600 Plymouth Street property and directly upgradient on the 1667 Plymouth Street property is required to distinguish and confirm the suspected release in the Plymouth Street.
- CDM evaluated the potential for the suspected release in the Plymouth Street to be related to leak in sanitary sewer line that runs beneath the Plymouth Street. As part of the evaluation, CDM obtained and reviewed sanitary sewer construction and maintenance information available from the City of Mountain View – Public Works and Public Services Divisions. Per the information provided, the City conducted a video surveillance of the sanitary sewer line between the Huff Avenue and Alta Avenue in 2005. The video surveillance showed break in the sewer line due to tree root penetration at a location more than 60 feet east of the suspected release location near CDM-MIP-2. It is not customary for the City to re-install a sewer line under such circumstances. Therefore, the penetrating tree roots were cut from the sewer line to prevent further damage. The relationship between this sewer line break and observed TCE impacts near CDM-MIP-2 is unknown.

EXHIBIT C.2

Kennedy/Jenks Consultants

Engineers and Scientists

Marathon Plaza, Tenth Floor
303 Second Street
San Francisco, California 94107
415-243-2150
FAX 415-896-0999

20 February 1998

Mr. Arnold Kessler, Esq.
Law Office of David E. Schricker
702 Marshall Street, Suite 314
Redwood City, CA 94063

RECEIVED
FEB 23 1998

Subject: Sequoia Station Area Sewers
Redwood City, California
K/J 980505.00

Dear Mr. Kessler:

As requested, we have reviewed the correspondence, reports, site maps and video tapes forwarded to us for pertinence in allegations that the condition of the sanitary sewers and possible leakage of water from the sewers contributed to PCE and TCE chemicals found in groundwater in the vicinity of Sequoia Station Area in Redwood City.

Sewers

It is our understanding that the sewers along El Camino Real and Jefferson Avenue that serve Roy's Dry Cleaners and Sequoia Station were constructed before 1945 (Yukic 1995). The site plan prepared by Subsurface Consultants, Inc. (1998) identifies these sewers and shows them to be constructed of vitrified clay (V.C.) pipe. Most of the pipe is 6-inch diameter, which was laid at a minimum slope of 0.33 percent for a full pipe velocity of 2 feet per second when it was new, (Manning, n (flow coefficient) = 0.011), and a capacity of about 0.205 MGD (140 gpm).

The 6-inch sewer pipe begins on El Camino Real at Manhole 01 about midway between James and Harrison Street and runs south eastward toward Jefferson Street at Manhole 02. At the corner of Harrison and El Camino Real there are two major laterals entering Manhole 01A, one that had served the Davies Parcel, and another that is on Harrison Street.

There is a 6-inch lateral sewer connection that enters from Roy's Cleaners about 70 feet south eastward of Manhole 01A. The sewer turns to the northeast on Jefferson Street at Manhole 02, and also receives two additional branches, one from the west on Jefferson Street and another running from the south up El Camino Real. An 8-inch sewer goes a short way (32 feet) to the northwest up Jefferson Avenue to Manhole 03, but then again is the 6-inch, minimum slope V.C. sewer going to Manhole 04 at Franklin Street and continuing on to Manhole 05 at the railroad property.

Mr. Arnold Kessler, Esq.
Law Office of David E. Schricker
20 February 1998
Page 2

Overall, there are about 1,287 lineal feet of mainline sewer from Manhole 01 to Manhole 05, and 358 feet of the branch or lateral sewers.

Vitrified clay sewers were usually of 3 feet length and utilized cement mortar prior to 1960 to seal bell and spigot joints (Morris 1963). Overall, there are about 550 individual sewer sections in the sewers surveyed.

The use of V.C. clay sewers with cement mortar joints represented good practice for providing a durable, low maintenance utility and was utilized extensively prior to the mid 1930's (Morris 1963 and Bruce & Caldwell 1957). Sewers of this type were constructed in a select backfill or granular with compaction in the trench above to minimize settlement. Following pipe installation the usual practice was testing by water or air pressure to indicate that the joints were tight with minimum leakage and the pipe not broken for acceptance of use.

The projected average useful life of sewers of this type is 50 years (California Auditor 1979). Deterioration can occur by corrosion, cracking and brittle failure of the cement mortar joints (Lawrence 1965) and by earth settlement, which causes sagging and cracking of joints over time by road traffic loads, soil expansion and shrinkage, general soil subsidence, or seismic vibrations.

It is not at all unexpected to have some deteriorated joints and cracks in the V.C. pipe that is, for the most part, 50 or more years old and subject to the heavy vehicular traffic of El Camino Real. So it is not unexpected to see the reports of some cracks and description of "sags" in the sewer by SMS (1996), primarily in the portion on El Camino Real.

However, whether these sewer cracks contributed substantially to the PCE-TCE concentrations underlying Sequoia Station is still subject to question despite records of its occurrence elsewhere (Izzo 1992) or as presumed by Morse (1997). In fact, my review of the sewer video reports in the Lincoln Village area cited by Izzo indicated that nearly half (30 of 68 joints) were cracked and defective and may not be a direct comparison to Sequoia Station. The leakage through these sewers that contained wastewater from the dry cleaners was the primary cause of PCE found in nearby groundwater of the North Stockton-Lincoln Village area. Contrastingly, less than 10 percent of the pipe sections adjacent to the Davies Parcel along El Camino Real (Manhole 01A to 02) showed any defects. So the presumption that this sewer is the cause of PCE at the Davies site is certainly more questionable.

PCE/TCE Sources

The various reports indicate that probable sources of PCE/TCE use and possible leakage were from the Davies property and automotive repair activity, at Roy's Dry Cleaners at 1100 EL Camino Avenue, and at the former dry cleaners on James Avenue. Yukic (1995)

EXHIBIT C.3

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**STAFF SUMMARY REPORT (David Barr)
MEETING DATE: September 16, 1998**

ITEM: 13

SUBJECT: CITY OF REDWOOD CITY, SEQUOIA STATION, REDWOOD CITY, SAN MATEO COUNTY - Assignment of responsibility for investigation of groundwater impacted by PCE at Sequoia Station.

DISCUSSION: Sequoia Station is a large retail City of Redwood City redevelopment project. This relatively recent redevelopment consists of a Safeway Store, a variety of other retail businesses, and some areas still to be redeveloped. Previously the site consisted of several gas stations, a number of small businesses, and an auto dealership. The former auto dealership site, known as the Davies parcel, is located on the upgradient side of Sequoia Station in terms of groundwater flow direction (see maps, Appendix B). Groundwater investigation and cleanup originally focused on cleanup of fuel leaks at the two service stations. During the course of the fuel cleanups, it was discovered that PCE and associated breakdown products, TCE and DCE, were also present in groundwater. The highest levels of PCE in groundwater have been found on the Davies parcel immediately adjacent to El Camino Real underneath the former auto dealership's fueling station. No PCE groundwater samples have been taken in El Camino Real. Across El Camino Real is Roy's Dry Cleaner. Board staff believe that the most likely scenario for the source of PCE in groundwater on Sequoia Station is PCE discharged over the years from Roy's Dry Cleaner to Redwood City's sanitary sewer running along and under El Camino Real where it leaked from the sewer and entered groundwater. The sewer line is in generally poor condition with numerous sags, breaks, and cracks. Groundwater sampled from beneath Roy's Dry Cleaner contained much lower levels of PCE than the samples from across the street on the Davies parcel. The sewer connection from Roy's is in very good condition. Apparently most leakage occurred after the discharge entered the City's sewer line. This situation is similar to many other dry cleaner sites and is a well documented problem in the Central Valley.

Board Staff have sent CWC §13267 requests to the City of Redwood City, as the owner of the sewer line, and the owner of the Roy's Dry Cleaner property requiring that they investigate the extent of PCE contaminated groundwater at Sequoia Station. The City does not agree with Board staff's findings (Appendices A3 and A4). The City argues that the source of PCE found in groundwater at Sequoia Station is on the Davies parcel and therefore not the responsibility of the City. The staff believes that it has met the burden to require a technical report under §13267, that the City is "suspected of discharging" waste. The City requested and was granted a review of the staff's request before the Assistant Executive Officer (Appendix A.3). The AEO determined that enough evidence exists to support the staff request and this was later confirmed in a CWC §13267 request signed by the Executive Officer dated July 23 (Appendix A.1).

ITEM: 13

MEETING DATE: September 16, 1998

SUBJECT: SEQUOIA STATION, REDWOOD CITY, SAN MATEO COUNTY

Page 2

The City has filed an appeal with the State Water Board requesting a review of the CWC §13267 request and a stay vacating the request (Appendix A.2). The City also asked that the appeal to the State Water Board be held in abeyance pending the possibility of a review before the Regional Board. While we have not normally heard these types of appeals before the Board before in this manner, the situation is similar to other cases where the Board determined who was a discharger or if there is enough information to require a CWC §13267 request. In this case we are asking for a technical investigation under CWC §13267 and will determine who is a discharger based upon that investigation. Staff believes at this time that there is enough information to find that the City and the Boltons are suspected dischargers and should be required to submit a CWC §13267 report.

**RECOMM-
ENDATION:**

Hear the City's arguments why they should not be required to respond to a CWC §13267 request. This is not an action item, but the Board may wish to provide guidance and direction to staff.

File No. 2179.7159 (DIB)

Appendices: A. Correspondence
B. Site Maps

EXHIBIT C.4



California Regional Water Quality Control Board

San Francisco Bay Region

Winston H. Hickox
Secretary for
Environmental
Protection

Internet Address: <http://www.swrcb.ca.gov>
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460



Gray Davis
Governor

November 8, 1999
File No: 2179.7159 (DIB)

Mr. R. B. Dantes
District Branch Chief
Caltrans
Office of Permits
Box 23660
Oakland, CA 94623-0660

Subject: Request by City of Redwood City for Encroachment Permit, Permit Application No. 99-6SV2299, State Highway 04-SM-82, Post Mile 4.1
Sequoia Station, Redwood City, San Mateo County

Dear Mr. Dantes:

This letter is in regards to the request by the City of Redwood City to drill six borings in El Camino Real, a state highway, for the purpose of collecting soil and groundwater data for an environmental investigation. The request was contained in the subject permit application. Caltrans has denied the permit. We respectfully request that you reconsider your denial of the permit. The proposed borings are part of a Regional Board approved workplan for an environmental investigation. The investigation is to determine whether the sanitary sewer running under El Camino Real is the source of volatile organic compounds (VOCs) found in groundwater beneath Sequoia Station, a retail development adjacent to El Camino Real. The most useful and suitable location for the data to be collected is in the roadway close to the sanitary sewer. The past presence of other pollutant sources such as a former fueling island and associated underground tank close to the edge of the roadway make samples taken at the sidewalk less useful than samples taken in the roadway. There is a large VOC pollutant plume in this area that is under investigation. The Regional Board believes the source of the VOCs to be leakage from the sanitary sewer under El Camino Real. Soil and groundwater samples from the area of the sanitary sewer are necessary to characterize the source of the contamination and to move forward with the investigation of the extent of the pollutant plume.

The collection of the soil and groundwater samples will cause minimal impact on the roadway and the disruption of traffic flow should be for a limited time only. Because of the need to move forward with this investigation we request that you reconsider your denial of the subject permit and approve the work proposed by the City of Redwood City.

If you have any questions please contact David Barr of my staff at (510) 622-2313.

Sincerely,

Lawrence P. Kolb
Assistant Executive Officer



Stephen Morse

Chief, Toxics Cleanup Division

cc: Michele Shoemaker
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Mr. Arnold Kessler
Assistant City Attorney
City of Redwood City
702 Marshall, Suite 314
Redwood City, CA 94065

Bert & Fern Bolton
10716 Cameo Drive
Sun City, AZ 85351



EXHIBIT D

EXHIBIT D.1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 90-016

SITE CLEANUP REQUIREMENTS FOR:

ADVALLOY INC.
844 EAST CHARLESTON ROAD
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. Site History Advalloy has occupied the facility at 844 East Charleston Road in Palo Alto since early 1968 and purchased the property in 1971. Advalloy for purposes of this order is primarily responsible for this discharge and is hereinafter called a discharger.
2. The site is small and has only one building (see attached site map). Operations at the facility currently consist of precision metal stamping for the semi-conductor industry. The discharger uses degreasing solvents in its operations.
3. Hydrogeology The site is located on a series of overlapping alluvial fans deposited by east-flowing streams descending from the Santa Cruz Mountains. The regional groundwater gradient is northeast toward San Francisco Bay. A shallow water bearing zone has been encountered at approximately ten feet below ground surface. Most of the existing monitoring wells have been screened in this zone. The location and character of the deeper water bearing zones beneath the site are poorly understood.
4. Site History An environmental audit was performed at the Ford-Aerospace facility located downgradient of the discharger's site in March 1987. This audit included the installation of four monitoring wells. One of these wells (F-2) is located on East Charleston Road across the street from the discharger's facility. The results of the Ford-Aerospace investigation detected VOC's (volatile organic compounds) in the shallow groundwater beneath the site extending upgradient to monitoring well F-2. The chemicals detected in the groundwater include: trichloroethylene, perchloroethylene, Freon 113, Acetone, trans 1,2-dichloroethylene. Total VOC concentrations have been as high as 2000 parts per billion.
5. The discharger submitted a chemical use history on March 29, 1988 which indicated that TCE and Freon 113 had been used at the facility. Based on this, and the results of the Ford-Aerospace investigation, staff requested the discharger to initiate a pollution source investigation.

6. The discharger completed and submitted the source area and groundwater contamination investigation in June of 1988. This report provided the following information:

Significant concentrations of VOC's were detected in soils at the rear of the facility during investigations near the underground acid-neutralization system (see site map). These include TCE at 7,000 ppb, trans-1,2-DCE at 630 ppb, and Methylene Chloride at 5,500 ppb.

Three monitoring wells were completed at the facility and all three have detected VOC's in the groundwater. Concentrations of TCE in the monitoring well near the acid-neutralization system have varied, but have been as high as 12,000 ppb.

In July of 1989 Advalloy submitted a technical report entitled Futher Investigation of Soil and Groundwater near the Advalloy Inc. Facility. Seven more soil borings were done and they installed and sample six monitoring wells (two Intermediate Zone and four in the Shallow Zone wells) for a total of nine. All soil and groundwater samples found VOC's with one of the intermediate zone wells detecting TCE as high as 39,000 ppb.

7. Board records indicate that Fairchild Instrument and Camera Corp. used this and adjacent facilities from 1957 to 1967 for research and production purposes. Additionally, the records indicate that Fairchild had used some of the chemicals that have been detected in the sites soil and groundwater. However, based on the available history of chemical usage, storage and handling at the site Fairchild is not considered a discharger. The potential exists for other on-site sources of chemicals which have not yet been identified and if future investigations indicate that Fairchild did discharge chemicals this Order will be modified to include Fairchild.
8. The discharger has contributed chemicals to the groundwater which have migrated off-site and have commingled with chemical plumes from other sources. Board staff is currently investigating other possible sources to the commingled pollutant plume. Site Cleanup Requirements will be drafted for these sources as they are discovered.
9. Resolution 88-160, adopted by the Regional Board, strongly encourages, and requires to the extent allowed by law, the maximum reuse of extracted groundwater feasible either by the discharger or other public or private water users.
10. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.
11. The existing and potential beneficial uses of the groundwater underlying and adjacent to the discharger's facilities include:
 - a. Industrial process water supply
 - b. Industrial service supply
 - c. Agricultural supply

d. Municipal and domestic supply

12. The discharger caused or permitted waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
13. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
14. The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharges and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The discharger shall conduct monitoring activities as needed to define the local hydrogeological conditions, and the lateral and vertical extent of the soil and groundwater pollution. Should monitoring results show evidence of pollution migration, additional plume characterization of pollutant extent shall be required.

C. PROVISIONS:

1. The discharger shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Board's Executive Officer.
2. The discharger shall comply with this Order immediately upon adoption with the exception that the discharger shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2., as modified in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

- a. 1) COMPLETION DATE: March 16, 1990
TASK: QUALITY ASSURANCE PROJECT PLAN: Submit a technical report acceptable to the Executive Officer containing a Quality Assurance Project Plan. The Quality Assurance Project Plan format and contents shall be consistent with CERCLA/SARA regulations and guidance.
- b. 1) COMPLETION DATE: February 16, 1990
TASK: GROUNDWATER POLLUTION CHARACTERIZATION PROPOSAL: Submit a technical report acceptable to the Executive Officer containing a proposal to define the lateral and vertical extent of the groundwater pollution.

2) COMPLETION DATE: June 15, 1990
TASK: COMPLETION OF GROUNDWATER POLLUTION CHARACTERIZATION: Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 2.a.1).
- c. 1) COMPLETION DATE: February 16, 1990
TASK: SOURCE IDENTIFICATION PROPOSAL: Submit a technical report acceptable to the Executive Officer containing a proposal to identify all pollution sources onsite.

2) COMPLETION DATE: June 15, 1990
TASK: COMPLETION OF SOURCE IDENTIFICATION: Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 2.b.1).

- d. 1) **COMPLETION DATE:** May 18, 1990
TASK: INTERIM REMEDIAL ACTIONS: Submit a technical report acceptable to the Executive Officer which contains an evaluation of interim remedial alternatives, a recommended plan for interim remediation, and an implementation time schedule. This report shall evaluate the removal and/or cleanup of polluted soils; evaluate alternative hydraulic control systems to contain and to initiate cleanup of polluted groundwater. Groundwater treatment plans shall consider Regional Board Resolution 88-160 in recommending groundwater disposal alternatives and include a completed NPDES application to discharge to surface waters, if such discharge is an element of the plan.
- 2) **COMPLETION DATE:** September 14, 1990
TASK: COMPLETION OF INTERIM REMEDIAL ACTIONS: Submit a technical report acceptable to the Executive Officer documenting completion of construction and startup of the operation of the interim remedies identified in the technical report submitted for Task 2.c.1.
- e. **COMPLETION DATE:** September 13, 1991
TASK: FINAL CLEANUP OBJECTIVES AND ACTIONS: Submit a technical report acceptable to the Executive Officer containing: 1) an evaluation of interim remedial actions, 2) results of a feasibility study evaluating alternative final remedial measures, 3) recommended measures necessary to achieve final cleanup measures, and 4) specific tasks and a time schedule necessary to implement the recommended final remedial measures.

The submittal of technical reports evaluating immediate, interim and final remedial measures will include a projection of the cost, effectiveness, benefits and impact on public health, welfare and environment of each alternative measure. The remedial investigation and feasibility study shall consider the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1(c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California".

3. If the discharger is delayed, interrupted or prevented from

meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

4. The discharger shall submit to the Board monthly technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order. These reports shall consist of a letter report that, (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order. These reports shall be submitted by the 15th of each month, summarizing the previous month's activities.
5. The discharger shall submit to the Board technical reports acceptable to the Executive Officer containing Quality Assurance Project Plans, Site Safety Plans, and Site Sampling Plans.
6. Site Sampling Plans and Site Safety Plans shall be submitted for each task listed in Provision 2. and for conducting the Self-Monitoring Program. The Site Safety Plans, and Site Sampling Plans format and contents shall be consistent with CERCLA regulations and guidance documents.
7. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer. This requirement shall not apply to monthly reports and quarterly progress reports provided the hydrogeological information contained in these reports has been submitted or is scheduled for submittal by a registered geologist, engineering geologist, or professional engineer.
8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
9. The discharger shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the

requirements of this Order.

10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

- a. Santa Clara Valley Water District
- b. Santa Clara County Health Department
- c. City of Palo Alto
- d. State Department of Health Services/TSCD

The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to a local repository for public use.

11. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

- a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
- b. Access to copy any records required to be kept under the terms and conditions of this Order.
- c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
- d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.


12. The discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order within 60 days of said changes.

13. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC)

in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

14. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 17, 1990.



Steven R. Ritchie
Executive Officer

attachments: Self-Monitoring Program
Site Map

		FAIRCHILD 4030	FAIRCHILD 4020
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FABIAN WAY

4057 FAIRCHILD	4055 FAIRCHILD CHEMECAL STORAGE & MACHINE SHOP	4035 ADVALLOY 1967 to PRESENT FAIRCHILD 1957 to 1967	4017 CURRENTLY STANDFORD GLASS BLOWING FAIRCHILD 1957 to 1961
		844	

EAST CHARLESTON ROAD

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ADVALLOY CORPORATION
844 EAST CHARLESTON ROAD
PALO ALTO, CA
GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a waste discharger's monitoring program, also referred to as a self-monitoring program, are: (1) To document compliance with site cleanup requirements and prohibitions established by this Regional Board, (2) To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) To develop or assist in the development of effluent or other limitations, discharger prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) To prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Self-Monitoring Reports

a. Reporting Period:

Commencing with the report due May 15, 1990
written reports shall be filed regularly each
quarter within forty-five days from the end of the
quarter monitored.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by either a

principal executive officer or his duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

- (1). Results from each required analysis and observation shall be submitted in the quarterly self-monitoring report (SMR). GC/MS analysis shall be performed and all peaks identified and reported on each well according to Table 1 and on each new well immediately after installation and well development. Results shall also be submitted for any additional analyses performed by the discharger at the specific request of the Board.
- (2). The quarterly reports shall identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and shall have prior approval of the Board's Executive Officer.
- (3). The quarterly report shall include, but need not be limited to, groundwater elevations for all wells sampled, updated water table and piezometric surface maps for all affected water bearing zones, cross-sectional geological maps presenting soil boring log results and an interpretation of the hydrogeological setting of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.
- (4). Advalloy shall describe, in the quarterly SMR, the reasons for significant increases in a pollutant concentration at a well onsite. The description shall include:
 - 1). the source of the increase,
 - 2). how Advalloy determined or will investigate the source of the increase, and
 - 3). what source removal measures have been completed or will be proposed.
- (5). Original lab results shall be retained and shall be made available for inspection for three years after origination or until after all continuing or impending legal or administrative actions are resolved.

- (6). The quarterly reports shall include a discussion of unexpected operational changes which could affect performance of the extraction system, such as flow fluctuations, maintenance shutdown, etc.
- (7). Advalloy shall describe in the quarterly monitoring report the effectiveness of the actions taken to regain compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness.
- (8). The annual report shall be combined with the fourth quarter regular report and shall include cumulative data for each on-site well. The annual report for December shall also include minimum, maximum, median and average water quality data for the year.

d. SMP Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a quarterly SMR. The changes shall be implemented only upon written approval from Board staff.

Criteria for SMP revision:

- (1). Discontinued analysis for a routine chemical parameter for a specific well after a one-year period of below detection limit values for that parameter.
- (2). Changes in sampling frequency for a specific well after a one-year period of below detection limit values for all chemical parameters from that well.
- (3). Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g., evaluating groundwater extraction effectiveness or other remediation strategies).

D. DESCRIPTION OF SAMPLING STATIONS

Groundwater

<u>Stations</u>	<u>Description</u>
Listed in Table 1	Monitoring wells

E. SCHEDULE OF SAMPLING AND ANALYSIS